DESIGN AN ARCH FOOTBRIDGE

By

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Report is submitted as
the requirement for the degree of
Bachelor Engineering (Hons) (Civil)

UNIVERSITI TEKNOLOGI MARA
MAY 2006

DECLARATION BY CANDIDATE

I Khairunnisa Bt Muhamad, UiTM number of 2002611751 confirm that the work is my own and that appropriate credit has been given where reference has been made to the work of others.

(May 15, 2006)

ACKNOWLEDGEMENT

In the name of Allah, the most benevolent and the most merciful. All praises to Allah, God of the universe and peace be upon His messenger.

I would like to express my sincere appreciation to many people who had helped me in some ways or another, contributed to the whole research. First of all, I would like to dedicate my special compliments to En Rohamezan b Rohim as my supervisor for his guidance, encouragement and moral supports during the course of completing this research.

Besides that, I would like to express my special thanks to En. Mohd Zaini b Endut and En. Syahrul Fithry b Senin for helping and encouraging me during the completion of my research.

I would also like to express my sincere appreciation to the library of University Technology MARA, Pulau Pinang for providing me with the valuable information for my reference to complete this research.

Last but not least, my acknowledgement would not be complete without my sincere gratitude to my family and colleagues for their love, support, sincere cooperation and invaluable advice all these years I completed my work.

TABLE OF CONTENT

ABSTRACT

In recent year's bridge construction have been the most popular issues in structural engineering design and construction among engineers. Bridge constructions are the symbol of mankind's conquest of space. The analysis and design of an arch footbridge was studied in this project. An arch footbridge was chosen because arches have a specific shape that allows them to carry loads primarily in a state of pure compression for one specific arrangement of loads. Besides that the arch itself has its own aesthetic values of the bridge. In this project the bridge was designed for 50 meter length of span, 3 meter width of deck and 15 meter rise of the arch crown. The designed of this bridge covered the deck, beam, trusses cable and connection analysis and design. Beam and deck was designed as reinforce concrete design while others as steel designed. The variable loads imposed the bridge only from pedestrians' loadings and wind loading. The behaviours of the structure that have been considered are the deflection and flexural (axial forces, shear forces and bending moment) of the structure. The flexural behaviours was analysed by using 2-Dimensional simulation in LUSAS. The deflection and deformed mesh is analysed by using 3-Dimensional simulation of LUSAS. The final deflection of the bridge structure in this final year project is 0.1749 meter which satisfied the permissible deflection for 50 meter lengths of bridge span which is 0.25 meter.